

Claims

- 1-6. (Cancelled)
7. (Previously Presented) A motor comprising:
 - a stator assembly forming a cavity;
 - a rotor assembly including at least two members formed of dissimilar materials operatively mounted for rotation within the cavity;
 - a rotatable joint assembly connecting the at least two members together along securing surfaces that are substantially free of singularity points.
8. (Previously Presented) The motor of claim 7, wherein the two materials are bonded with an adhesive.
9. (Cancelled)
10. (Previously Presented) The motor of claim 7, wherein one of the at least two members is exposed to a first temperature and another of the at least two members is exposed to a second temperature different from the first temperature and, wherein the dissimilar materials and joint assembly provide thermal insulation between the first and second temperatures.
11. (Previously Presented) The motor of claim 10, further comprising a refrigeration system providing a cooling agent to the rotor assembly to maintain rotor windings of the rotor assembly at a cryogenic temperature.
12. (Previously Presented) The motor of claim 7, further comprising a vacuum jacket surrounding the rotor assembly to form a vacuum chamber therewithin that assists in thermally insulating the rotor windings.
13. (Previously Presented) The motor of claim 7, wherein the rotor assembly has a second joint assembly of similar construction to the joint assembly, the joint assembly and second joint assembly being positioned on opposite ends of the rotor assembly.

14. (Previously Presented) The motor of claim 7, wherein one of the dissimilar materials is a thermal insulator and the other material is a metal.

15. (Previously Presented) The motor of claim 7, wherein one of the at least two members is formed of a composite material and is adhesively bonded to another of the at least two members.

16. (Previously Presented) The motor of claim 7, wherein the joint assembly includes a torque tube and wherein a first of the at least two members includes a tubular member formed of first material adhesively bonded to first and second couplers formed of a second material.

17. (Previously Presented) A superconducting motor comprising:
a stator assembly having stator windings forming a stator cavity;
a rotor assembly having rotor windings;
a rotor assembly including members formed of dissimilar materials aligned along a common rotational axis, wherein a first of the members includes a first surface and a second of the members includes a second surface; and
a bond joining the first surface and the second surface together to join the first member and the second member and essentially eliminating singularity points along the bond.

18. (Cancelled)

19. (Currently Amended) The superconducting motor of claim 17, further comprising a refrigeration system providing a cooling agent to the rotor assembly to cool the rotor windings~~maintain the rotor windings at a cold temperature.~~

20. (Previously Presented) The superconducting motor of claim 17, further comprising a joint assembly forming a torque tube including the first and the second members adhesively bonded together.

21. (Previously Presented) The superconducting motor of claim 17, wherein the dissimilar materials are bonded with an adhesive.

22. (Currently Amended) The superconducting motor of claim 17, further comprising a vacuum jacket surrounding the rotor assembly to form a vacuum chamber therewithin ~~that assists in to~~ thermally insulating the rotor windings.

23. (Canceled)

24. (Previously Presented) The superconducting motor of claim 17, wherein one of the dissimilar materials include a thermal insulator and a metal.

25. (Previously Presented) The superconducting motor of claim 24, wherein the thermal insulator is formed of a composite material and is adhesively bonded to the metal.

26. (Currently Amended) A superconducting motor comprising:
a stator forming a cavity;
a rotor having windings mounted for rotation within the cavity;
a vacuum jacket encapsulating the rotor and forming a vacuum region therewithin;
a joint assembly ~~forming~~ located at a shaft end of the rotor and providing thermal isolation for the windings; and
wherein the joint assembly includes securing surfaces that are bonded together to form a joint that is substantially free of singularity points ~~along~~.

27. (Previously Presented) The superconducting motor of claim 26, wherein the joint assembly includes at least two members presenting the securing surfaces and formed of dissimilar material adhesively bonded together along the joint.

28. (Cancelled)

29. (Previously Presented) The superconducting motor of claim 27, wherein the rotor has a second joint assembly of similar construction to the joint assembly and, wherein the second joint assembly is positioned at an end of the rotor substantially opposite to the joint assembly forming the shaft end.

30. (Previously Presented) The superconducting motor of claim 27, wherein the joint assembly is a torque tube having a tubular member formed of a first material adhesively bonded to first and second couplers formed of a second material.

31. (New) A superconducting motor comprising:
a stator assembly forming a cavity;
a rotor assembly including at least two members formed of dissimilar materials operatively mounted for rotation within the cavity, wherein a first of the members includes a first surface configured to have a first operational temperature and a second of the members includes a second surface configured to have a second operational temperature different from the first operational temperature;
a joint assembly connecting the at least two members together along securing surfaces that are substantially free of singularity points and providing thermal insulation between the first surface and the second surface to separate the first operational temperature from the second operational temperature.

32. (New) The superconducting motor of claim 31 further comprising a refrigeration system configured to provide coolant to the rotor assembly to maintain the first operational temperature as less than the second operational temperature.

33. (New) The superconducting motor of claim 31 wherein the first of the members includes rotor windings and wherein the first operational temperature is a cryogenic temperature.

34. (New) The superconducting motor of claim 31 further comprising a vacuum jacket surrounding the rotor assembly to form a vacuum chamber therewithin to thermally insulate the first of the members.

35. (New) The superconducting motor of claim 31 wherein the two materials are bonded with an adhesive.

36. (New) The superconducting motor of claim 31 wherein the rotor assembly includes a second joint assembly of similar construction to the joint

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assembly, the joint assembly and second joint assembly being positioned on opposite ends of the rotor assembly.

37. (New) The superconducting motor of claim 31 wherein the joint assembly includes a torque tube and wherein a first of the two members includes a tubular member formed of first material adhesively bonded to first and second couplers formed of a second material.